Contents lists available at ScienceDirect

Transportation Research Interdisciplinary Perspectives

Cruising through a pandemic: The impact of COVID-19 on intentions to cruise

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ARTICLE INFO

ABSTRACT

The global coronavirus pandemic has devastated the cruise sector with widespread disruption and cancellations affecting millions of cruise passengers. The cruise industry was negatively affected due to the enclavic and confined environment onboard, the high infection rates among both crew and passengers, and widespread negative media coverage. This study explores the impact of COVID-19 on willingness to cruise and attitudes towards cruising for both cruisers and non-cruisers living in Australia and the United Kingdom. Data analysis of respondents' comments was undertaken using both Leximancer text analytic software and manual content analysis. Findings indicate country of residence has a significant influence on risk perceptions for a cruise holiday and affects future intentions to cruise. Specific impacts for the cruise industry are discussed and recommendations proposed for policy and practice.

1. Introduction

Prior to the COVID-19 pandemic, the cruise ship sector was one of the fastest growing segments in the global tourism industry (Papathanassis, 2019). With an estimated annual value of more than $USD150 billion, the cruise industry had been forecast to reach a record level of 32 million passengers in 2020 (Cruise Lines International Association, 2019b) [CLIA]. Cruise holidays became increasingly popular during the first two decades of the twenty-first century and Australia and the United Kingdom (UK) were particularly significant markets. For example, Australia exceeded expectations in achieving one million passengers in 2014, six years earlier than market predictions (Dowling and Weeden, 2017). Australia was performing strongly in cruise travel, with cruising becoming the country's fastest growing tourism sector (CLIA Australasia, 2017; CLIA Australasia n.d.). By 2018, Australia was the fifth largest source country for passengers, behind the USA, China, Germany, and the UK (CLIA, 2019a) and had a higher market penetration than anywhere else in the world. Significantly, Australia was the only market in which as many as 1-in-17 people had cruised (CLIA Australasia, 2019). Industry reports estimated the contribution of the cruise sector to the Australian economy was worth $AUD 5.2

billion in the 2018/19 financial year (The Maritime Executive, 2019).

Similarly, prior to the COVID-19 pandemic, the UK had seen sustained growth, with increasing numbers of cruise lines operating out of the UK as demand for cruising increased. In 2018, just over two million passengers originated from the UK and Ireland, with the UK being the second largest European market after Germany (CLIA, 2019a), representing 28% of cruise passengers in Europe (Business Research & Economic Advisors, 2019). Cruising generated €10.4 billion for the UK economy in 2017 (Cruise Lines International Association, 2018). However, there is little research on tourists' risk perceptions in these two markets. Further, no research has explored the potential impacts of the COVID-19 pandemic on tourists' risk perceptions or future intentions to cruise.

The COVID-19 pandemic of 2020 has devastated the cruise sector, with widespread disruption and cancellations affecting millions of passengers and people employed directly or indirectly through the cruise industry. The cruise sector was particularly and immediately affected due to high infection rates among crew and passengers (Mizumoto and Chowell, 2020; Rocklöv et al., 2020). Thousands of passengers were stranded onboard as cruise ships were held in quarantine or refused entry to ports as borders closed. Over 700 people were infected

onboard the cruise ship *Diamond Princess*, with 14 deaths (Leffler and Hogan, 2020). By the end of the first quarter of 2020, over 50 cruise ships had confirmed cases of COVID-19 documented, which was one fifth of the global ocean cruise fleet (Dolven et al., 2020). Within these, the *Ruby Princess* gained notoriety as some of the first cases in Australia were passengers disembarking the ship. There were 28 deaths linked to the *Ruby Princess* (22 in Australia, the rest in the USA) (Walker, 2020), and controversy erupted over the management and handling of the initial outbreak.

Given the pandemic's devastating impact on the cruise industry, it is important to understand the potential effect COVID-19 has had on how people think and feel about the riskiness of cruise holidays. Understanding risk is essential, as perceptions of risk influence travel decision-making (Bowen et al., 2014; Floyd and Pennington-Gray, 2004; Karl, 2018; Schroeder et al., 2013; Sönmez and Graefe, 1998). Perceived risk has also been recognised as a significant factor influencing destination choice (Floyd and Pennington-Gray, 2004; Kim et al., 2016; Sharifpour et al., 2014; Sönmez and Graefe, 1998). However, little is known about how risk perceptions influence decision-making for cruise holidays. This is a significant research gap, as the extent to which the cruise industry understands how people feel about risk and how risk perceptions affect choices to cruise or not, will be important to the success (or otherwise) of the cruise industry's post-COVID recovery strategies. There is limited research examining non-cruisers' (i.e., people who have never taken a cruise holiday) risk perceptions. Such understanding may explain why some people reject a cruise as a holiday choice, which would inform cruise operators about potential barriers for new passengers.

This study's objective was to address gaps in prior research and investigate changes in people's willingness to ocean cruise given the COVID-19 pandemic. In addition, our study explored how risk perceptions affected intentions to cruise. The study also compared responses from Australian and UK consumers with and without prior cruise experience. In doing so, it offers insights into differences between these groups. Research on non-cruisers is scarce, with a few notable exceptions (see Holland, 2020; Lebrun, 2015; Park and Petrick, 2009). Therefore, this study contributes to the literature by examining and comparing risk perceptions between these groups to determine any significant differences, and to what extent cruise experience influences risk perceptions and future cruise and travel intentions.

First, we situate the study within the COVID-19 pandemic and explore its impact on the cruise industry, particularly as it has affected Australia and the UK. Second, we examine the risk perception literature and suggest a conceptual framework from this literature. Third, we outline the methodology followed, including the sampling process, data collection and data analysis. Fourth, we explain the findings and discuss these with reference to the research gaps identified. Fifth, we discuss the findings with reference to the conceptual framework that guided the study and, finally, we conclude with some comments on the study's implications for policy and practice, directions for future research, and limitations.

1.1. Research context

Early in the coronavirus outbreak, cruise ships featured prominently. For example, the *Diamond Princess* was quarantined in Japan for six weeks following confirmation of an outbreak onboard. On 20th February 2020, the World Health Organization (WHO) announced the *Diamond Princess* accounted for more than half of the then 1000 cases of coronavirus outside the Chinese mainland (Belam et al., 2020). By that time, there had been seven deaths associated with the cruise ship (eventually there would be at least 14, including the first Australian, a 78-year-old man who died after repatriation from Japan). As the coronavirus outbreak spread during February, more ships in the Asia-Pacific region were quarantined or blocked from entering ports. By mid-March, many ports around the world were

closed to cruise ships and itineraries had been thrown into chaos. Through that month cruise companies proactively shut down operations. As noted earlier, the COVID-19 pandemic has been catastrophic for the cruise industry, with the complete cessation of operations for all brands. COVID-19 has negatively impacted the cruise industry in several ways. Economically, the pause in operations resulted in an estimated $50 billion loss by September 2020 (CLIA, 2020). By October 2020, at least three cruise lines (Birka Cruises, Cruise & Maritime Voyages and Pullmantur Cruises) had gone out of business because of the pandemic (The Maritime Executive, 2020). Other brands were able to secure funding (Oxford Analytica, 2020) and appeared to be surviving, although there were ongoing concerns about their ability to ride out the pandemic the longer it continued.

The outbreak of COVID-19 onboard several cruise ships, as well as the sudden termination of hundreds of voyages, significantly affected the perception and promotion of cruising as a 'safe' holiday. While cruises had traditionally been perceived and promoted as 'safe', the COVID-19 pandemic highlighted the critical importance of risk perceptions. This is significant, as cruisers are generally thought to be risk-averse (Tarlow, 2006) and ensuring a safe and healthy cruise is of the utmost importance for the cruise industry (Liu-Lastres et al., 2019). In the short term, tourists are fearful of traveling on cruise ships and are worried about exposure to COVID-19 in the confined environment onboard.

The cruise industry has also been affected by a narrative in the wider media of cruise ships as 'petri-dishes' (Awoniyi, 2020) and this lasting negative image may be difficult to overcome. Other impacts include increased awareness, and media coverage, of industry practices around employee working conditions, environmental sustainability, homeport optimisation (perceived as limiting tax liabilities and government oversight) and the overall trustworthiness of the industry. COVID-19 has presented severe challenges to restarting operations, including governments around the world continuing to ban cruising operations and refusing entry to cruise ships into their ports and territories, and raising fears and anxieties about COVID-19 that will affect intentions to cruise in the future.

As of October 2020, there was no indication when most cruising operations would resume. Some smaller, expedition-type cruise ships restarted cruising in August 2020, offering shorter cruises with mostly one nationality of passenger onboard to minimise risk, including Costa Cruises (Italian), Hurtigruten (Norwegian) and Paul Gauguin (French). However, in all these first, tentative voyages, confirmed cases of COVID-19 were found to be onboard. As more than 32 million people were expected to cruise in 2020, the pandemic has had a significant impact on the travel and holiday plans of millions of cruise passengers.

In Australia, risk perceptions were particularly affected by the ongoing saga of the *Ruby Princess*. As Liu-Lastres et al. (2018) noted, when an outbreak is not managed effectively, the situation can become a crisis and result in reputational damage, increased risk perceptions and, ultimately, affect future purchase decisions (see also Le and Arcodia, 2018). Indeed, the saga of the *Ruby Princess* reflects the need to manage risk communication to lessen long-term negative impacts.

The *Ruby Princess* debacle involved almost 2700 returning passengers, some showing coronavirus-type symptoms, who disembarked in Sydney on 19 March 2020. A total of 900 of these passengers were based internationally and flew home with the risk of spreading the virus, while the remainder travelled across almost every state in Australia to their homes. The port and New South Wales (NSW) Health authorities chose not to implement additional screening measures, nor did Sydney airport undertake any screening or temperature tests at that time. A special commission of inquiry was established by the NSW State Government on 15th April 2020 to investigate the management of these passengers.

Although the inquiry focused on the actions of the NSW State and Australian Federal Government authorities, it also considered the actions of the crew of the *Ruby Princess*, and the ship's owner,

Carnival Corporation. The inquiry found the ship's medical team contributed to the outcome by having too few swabs available for testing prior to disembarking, an action described as a "*woeful shortcoming*" and noted "*Carnival should have ensured that passengers and crew aboard the Ruby Princess were informed that there were suspect cases of COVID-19 on board. Those persons meeting the definition of a suspect case should have been required to isolate in their cabins*" (Walker, 2020, pp. 33). The lack of swabs (only six viral kits were onboard at the time) was compounded by a poor response from NSW health authorities when asked for help by the ship's doctor. Ultimately four passengers were swabbed onboard and tested negative and the ship was deemed medium risk and remaining passengers could disembark (Walker, 2020). *Ruby Princess* would later be linked to more than 1221 cases and 28 deaths (Davies et al., 2020; Walker, 2020). This debacle diminished the reputation of the Princess brand in Australia and cruising in general.

In Australia, the connection between cruise ships and coronavirus quickly gained prominence for several reasons, including the widespread media coverage and social media presence of, and engagement with, Australians 'trapped' on board quarantined cruise ships. Demand for the Australian Government to send a chartered flight to 'rescue' its citizens from the *Diamond Princess* were headline news, with regular updates from Australian travellers stranded aboard cruise ships made during news broadcasts. The timing of these events was particularly bad, as the outbreaks occurred at the height of the southern hemisphere cruising season, which meant more cruise ships than usual were in Australian waters, with many locals onboard. The initial move of the Australian Government to close Australian ports to all cruise ships except those sailing exclusively in Australia and New Zealand waters, also affirmed public perceptions of cruise ships as potentially dangerous. The subsequent decision to close Australian ports to all cruise ships in late March and, ultimately, to expel cruise ships from Australian waters was unprecedented. Indeed, an example of the scope and scale of the shift in policy towards cruise travel was reflected in the expulsion of the P&O ship *Pacific Explorer*. P&O Australia had called Sydney home for decades and it was the first time in 88 years it had been forced to leave Australia.

Further, not only was a cruise passenger the first Australian COVID-19 related death; the first deaths in at least four Australian states and territories (Queensland, Western Australia, Tasmania, and ACT) were cruise ship passengers. Indeed, Western Australia's first five COVID-19 related deaths were cruise ship passengers – from four different cruise ships. Tasmania's first three cases were cruise ship passengers, as were two out of the three initial deaths in Canberra. All four initial deaths in Queensland were cruise ship passengers.

Continued media coverage of cruise ships seeking to disembark passengers and crew in Australia followed for months, with most requests being refused. Frequent news stories prevailed of passengers and crew being medically evacuated from these ships for hospitalisation due to COVID-19. Statements were released by the Australian Government that if cruise ships were permitted to disembark passengers and crew in Australia, the sick could overwhelm hospitals throughout the country (Kaur and Carmody, 2020). As a result of the link of COVID-19 cases to the *Ruby Princess*, a police criminal investigation and two government inquiries were launched into the ship and its handling. Statements were made that manslaughter charges might result, subsequently followed by the labelling of the *Ruby Princess* deaths as 'suspicious' and possibly homicide. Several well-covered police raids of the ship followed, with officials taking away documents and the ship's 'black box'. While reported deaths of cruise passengers slowed toward the end of April, media coverage of the *Ruby Princess* enquiries and investigations picked up when hearings began in May 2020. Given the heightened awareness of COVID-19 onboard cruise ships and the particular significance of deaths linked to COVID-19 in Australia, this study highlights how critical it is to understand the perception of risk.

2. Conceptual framework

The following section examines some extant literature relating to risk perceptions and how it has been applied to consumer decision making, particularly in relation to travel products such as ocean cruises.

2.1. Risk perceptions

Understanding risk is complex, with little consensus over definition regardless of many attempts to define, conceptualise and understand it (Aven and Renn, 2009; Boholm et al., 2016; Renn, 2008; Sjoberg, 2000; Slovic and Weber, 2002). For this study's purposes, risk is defined simply as the potential to lose something of value (Priest, 1990). A value may include "*physical health, social status, emotional well-being or financial wealth*" (Kungwani, 2014, p. 83). Risk perceptions refer to how people judge, characterise, and evaluate uncertainty (Slovic et al., 1980). Perceived risk may be defined as "*a consumer's beliefs about the potential uncertainty associated with negative outcomes in a purchase situation*" (Kim et al., 2008, p. 546). It is the overall amount of uncertainty perceived by a consumer about a specific purchase (Cox and Rich, 1964).

There is a higher level of risk associated with travel products due to their intangibility, high cost and complex decision-making (Lin et al., 2009) and a cruise is a high involvement travel decision. A potential cruiser must think about many aspects of the holiday, including type of cabin, where in the ship to select a cabin, which cruise line, transportation to and from the ship, itinerary, size of ship, mix of fellow passengers and reputation of the cruise line in addition to service elements, prevailing norms about giving gratuities and dress-codes.

In the wake of the COVID-19 pandemic, would-be cruisers also need to consider health protocols, outbreak prevention plans, onboard sanitation procedures, social distancing measures and the availability of temperature checks and health screenings. Additionally, they need to consider the possibility of being quarantined in a cabin for the duration of the trip if they or others become ill, or the cruise being terminated should there be an outbreak on that ship or region the cruise ship may be visiting. All of this adds to the uncertainty associated with the decision to cruise and, as such, to overall perceptions of risk.

2.2. Theoretical foundations

Scholars have noted there is no comprehensive, unifying conceptual theory of risk, especially for tourism (see Schroeder et al., 2013; Kasperson et al., 1988). Risk perceptions and decision-making are underpinned by cognitive processes and *information integration theory* [IIT] provided a conceptual foundation for this study (Anderson, 1971, 1981). Situated in psychology, the theory suggests new information is integrated into a person's existing beliefs and influences how attitudes are formed. Significantly, each piece of information has two qualities (value and weight). The value of information is its evaluation as being favourable or unfavourable and the weight is how much this matters to the individual. This builds on Kahneman and Tversky's (1979) *loss aversion* suggestion that an event or outcome that is perceived as negative is given more weight than positive outcomes. Thus, in IIT, information is acquired and integrated into existing cognitive frameworks, thereby influencing value judgments. New information, once acquired, can modify value judgments about an event and this can influence perceptions of alternatives prior to the final selection (Le and Arcodia, 2018).

Using this as a conceptual foundation, the discussion of the results here draws on the *social amplification of risk framework* (SARF). This interdisciplinary framework assists in examining how risk perceptions have been affected by COVID-19 and how differing risk communication in Australia and the UK impacted on the way risk is perceived.

SARF offers a way of understanding how social and individual factors influence risk perceptions. The framework suggests risk events interact with psychological, social, and cultural processes and helps explain why some risks are attenuated or amplified for different groups (Kasperson et al., 1988). The framework also identifies how risk perceptions affect behaviour patterns, which generate secondary social or economic impacts. As risk is a multifaceted and complex construct, risk communication and management often fail to recognise the social context in which risks are perceived. With the COVID-19 crisis, there has been a failure to recognise differing risk perceptions, where there may be differences between countries of residence and even differences within that country.

2.3. Risk in cruising

Risk perceptions about cruise holidays are not well understood, with scholars calling for more research (Henthorne et al., 2013; Holland, 2020; Le and Arcodia, 2018; Liu-Lastres et al., 2019). There has been little empirical research on exploring risk perception for those with cruise experience or those who have not cruised. Notable exceptions include Liu-Lastres et al. (2019), who examined risk communication and the importance of messaging during a crisis using the *risk perceptions attitude framework* (RPA). Their study framed risk communication within the RPA, exploring perceptual and behavioural differences among RPA groups. This led to the development of a conceptual model designed to understand the relationship between RPA groups, cruise travel intentions and safety perceptions, with past cruise travel experience mediating group and safety perceptions.

The cruise industry has managed other infectious illnesses, including outbreaks of H1N1 and norovirus (see Klein et al., 2017; Liu et al., 2016; Liu-Lastres et al., 2019; Neri et al., 2008; Mileski et al., 2014), measles (Lanini et al., 2014), influenza (Ferson et al., 2000) and legionnaires' disease (Kura et al., 2006; Mouchtouri and Rudge, 2015). These outbreaks onboard cruise ships resulted in cancelled sailings, limited passenger services and widespread illness. However, no studies have explored tourists' perceptions of risk in relation to the SARS or MERS pandemics, which would have been useful to compare with the COVID-19 pandemic.

2.4. Research questions

As much of the existing risk literature in tourism approaches risk from a positivist and quantitative lens, this study sought to extend our understanding by examining and exploring a deeper interpretation of the perceived risk of cruising by adding a qualitative perspective. A qualitative understanding is needed to fully explore what impact COVID-19 might have on risk perceptions for ocean cruising and how this might influence tourist decision-making. From this overview of the literature, we identified two research questions, namely:

- How has the COVID-19 pandemic influenced consumers' risk perception in relation to ocean cruising?
- How has the COVID-19 pandemic influenced consumers' future travel intensions in relation to ocean cruising?

3. Methodology

The methodology was exploratory in nature and made use of responses to a questionnaire administered to people obtained through a consumer research panel provider. Minimum targets were set for the percentage of respondents who were Australian (75%) and who had cruise experience (target 50%, actual 60% of the total sample). Respondents in this latter group (cruisers) had to be 40 years and above. The data collection agency sourced and managed the respondents. A total of 613 participants responded in June 2020 (during the COVID-19 pandemic), at a time when many cities were in lockdown and cruise ship operations were suspended or severely disrupted. A range of questions were asked that included quantitative and open-ended items. Here, we have focused on the comments made in the open-ended questions that asked about risk perceptions and future cruising intentions.

3.1. Sample characteristics

As can be seen in Table 1, most of the sample (76%) were from Australia and the balance from the UK. Sixty percent of the sample were cruiser, and the proportions of non-cruisers within both country's samples were roughly the same. The demographic statistics (e.g., gender, age, household income, employment, and education) were similar, and there were no statistically significant differences between the groups. The gender split of all groups was relatively balanced, although the UK non-cruiser group was more male dominated than was the other three (56% compared to 47–50% for the other groups). The average age of cruisers was higher than non-cruisers; this was an outcome of the survey design which targeted a minimum sample size of cruisers aged 40 or older (given the average age of Australian cruisers was 49, and 50 for UK passengers (CLIA, 2019a; CLIA Australasia, 2019). As already indicated, 60% of the sample had ocean cruised previously, compared to only 6% of Australians (3% UK) (CLIA Australasia, 2018, 2019).

3.2. Data collection

Within the questionnaire, respondents were provided with information about the nature of ocean cruising, which was defined as "*a trip on a commercial cruise line that involves sleeping on board in a cabin, as a paying passenger.*" It was also explained that cruisers eat, sleep and are entertained onboard the ship and that trips generally last from three to more than 100 days (for around the world cruises). Information was also provided as to what an ocean cruise was not (e.g., day trips on harbours, seas, or rivers; ferry trips or travel in private or public vessels, such as yachts, naval ships, fishing boats or merchant ships).

Respondents were asked about the impact the COVID-19 pandemic had on their perceptions of ocean cruising through a list of 20 items asking whether they agreed or disagreed with statements relating to the perceived risk of ocean cruising in the wake of the pandemic. These data are not discussed in this paper but are described here to provide the context within which the qualitative data was collected. Respondents were then asked two questions, namely:

Table 1
Sample characteristics.

Background Variable	TOTAL	Aus Cruiser	Aus Non-cruiser	UK Cruiser	UK Non-cruiser
	n = 613	283	181	86	63
Gender %	Male 49% Female (51%)	Male 48% Female 52%	Male 50% Female 50%	Male 47% Female 53%	Male 56% Female 44%
Age (Median)	53 years (54)	55 years (54)	48 years (48)	55 years (57)	49 years (49)
Annual Household income					
Median Household Income		52,000 to 90,999 AUD	52,000 to 90,999 AUD	25,000 to 51,999 GBP	25,000 to 51,999 GBP

1. Thinking about the issues raised in the previous section, please comment on how you feel about travelling now?
2. Is there anything that would impact your future intention to cruise?

3.3. Data analysis

Responses to the open-ended questions were analysed using the Leximancer program. Leximancer is a text mining and content analysis tool that uses mathematical algorithms to examine text and identify, in a grounded manner, the main concepts and themes that occur within it. The software not only identifies the frequency with which terms occur, but also how they relate to each other. Leximancer's content analysis can be undertaken using a conceptual (thematic) or relational (semantic) approach. Word frequency and co-occurrence counts are used as the basic data within Leximancer (Smith and Humphreys, 2006; Angus et al., 2013). Leximancer provides a robust analysis of qualitative data due to the machine supported investigation (Braun and Clarke, 2006; Liesch, et al., 2011; Lemon and Hayes, 2020) and has become a well-regarded research tool within market research, marketing, and tourism studies (Biroscak et al., 2017; Sotiriadou et al., 2014).

The advantages of using Leximancer rather than alternative qualitative data analysis tools, such as NVivo, are that it is machine supported, thereby increasing reliability, while reducing the risk of researcher bias and lethargy during coding. It also allows a much faster examination of large quantities of textual data and ensures adherence to a more standardised and streamlined coding system. In addition, it can be applied to more positivistic analysis (Sotiriadou et al., 2014). However, it does not fully replace the need for manual examination of the source data, or the need for researcher judgement in interpreting the results.

Leximancer generates "concept maps" that illustrate the output from the identification of words that occur within a text corpus, which are tagged and grouped into concepts labelled with a term that best represents the text commentary. This requires sufficient accumulated evidence within the text data before a distinct concept is validated and tagged. In this way, sentences and groups of sentences are tagged and grouped around a given concept when sufficient accumulated evidence emerges above a given threshold, to justify the identification of that concept.

Following the examination of the data and the identification of all possible concepts, Leximancer generates a visual 'concept map' that shows the concepts found, how they are interconnected within the text and how they cluster around given 'themes', which are displayed as bubbles. The size and importance (displayed by the 'hotness' of each theme, with those themes identified as most important displayed with "hotter" colours, and those of less importance in "cooler" colours. In this paper we have displayed the Leximancer concept maps in monochrome to aid readability. This shows the darker shades as the "hotter" more important themes, and the lighter and eventually blank theme bubbles as representing the less important ones. Figs. 1 and 2 show the concept maps generated from this analysis.

In addition to the concept maps, Leximancer generates a table of associated data that provides a list of each theme, the number of 'hits' found within the text (which is an indication of the overall importance of the theme), the concepts that are associated with the theme and a list of indicative text from the text corpus.

Two separate Leximancer analyses were undertaken. The first focused on the initial question relating to how respondents felt about travelling in the aftermath of the COVID-19 pandemic. This was a general question about their intention to travel whether on a cruise or other journey. The second analysis examined responses to the next question that asked about their perception of the desirability of cruising in the future. Some grouping of concepts that represented the same thing (e.g., COVID, coronavirus, virus) was undertaken to generate the most efficient output. The analysis of each question was undertaken by

country and by sub-group (e.g., cruiser versus non-cruiser). Sufficient differentiation was found between the four sub-groups (e.g., UK cruisers, UK non-cruisers, Australian cruisers, Australian non-cruisers) to permit a single whole cohort analysis for each of the two questions. However, each of the four sub-groups was tagged to allow their relative differences to be identified. The findings are displayed and discussed in the following section.

4. Findings

As already noted, two Leximancer analyses were undertaken to examine responses to the two open-ended questions. In the following sub-sections, the findings from these analyses are outlined.

4.1. Question 1 - travel intentions

The analysis of question one identified nine distinct themes and 19 concepts. As listed in Table 2, the most important theme was 'TRAVEL', which received 368 hits and included the concepts *travel, moment, internationally, home, COVID* and *risk*. This reflected respondents' concerns about travelling during the COVID-19 pandemic. As shown in the associated indicative text, many people were concerned not just about travelling on a cruise ship but also about travelling locally. While some (e.g., Australian cruisers) felt safe enough to take local trips within their own country but not trips overseas, others (e.g., UK cruisers and UK non-cruisers) were less confident about domestic or international travel. This appeared to be based on their concerns about the health risk or government-imposed travel restrictions.

The second most important theme was 'RISKY', which received 134 hits and included the concepts *risky, time, safe* and *cruise*. This theme reflected respondents' concerns about the risk COVID-19 posed to their health. International travel by air or sea was viewed as a potential risk to health and there were concerns the time was not right due to the many travel restrictions in place when the data were collected. Some people felt travel to some countries might pose less risks than others and there was concern among older people, who felt particularly vulnerable to the coronavirus.

The third most important theme was 'AUSTRALIA', with 100 hits, which included the concepts *Australia, overseas* and *international*. This reflected the views of Australian respondents, mainly Australian cruisers, who felt that, if they could not travel overseas, they could at least enjoy travel within their own country or home state. It should be noted Australia was able to halt the spread of the COVID-19 virus more quickly than many other countries. State and territory governments closed their borders and travel restrictions within some jurisdictions were imposed, but across most of the country, the combination of banned international travel and swift control of rates of infection resulted in a mini-boom for local tourism.

The fourth most important theme was 'FEEL', with 87 hits, which included the concepts *feel* and *country*. This theme reflected respondents' feelings about travel, domestically and internationally. Again, Australian respondents felt confident to travel within their own country, but not overseas. This view was also held by some UK respondents, although with some caveats about how they might travel safely.

The remaining five themes were all identified with modest hits and had single concepts of the same name. The theme 'COVID' reflected the fear respondents had about the COVID-19 virus and the impact this had on their travel intentions. The theme 'NERVOUS' related to concerns about travel in the wake of the coronavirus and its likely impact on health. The theme 'WAIT' reflected respondents' view that it was better to wait until the threat of the coronavirus was removed, either through eradication or the invention of a vaccine. The theme 'ABROAD' focused on respondents' concerns about overseas travel and the final theme ('INTERNATIONAL & INTERNATIONALLY') was a similar concept.
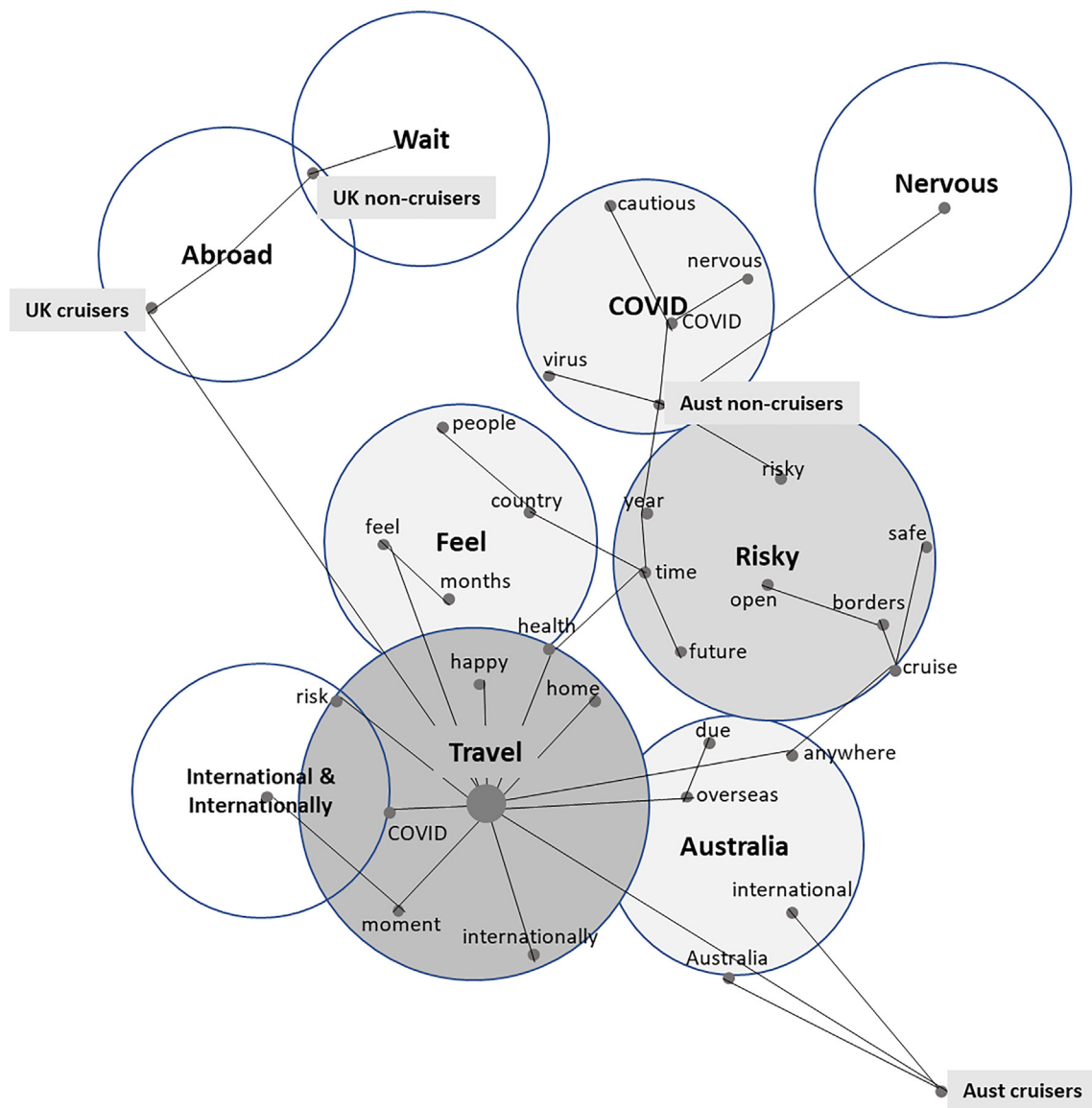
Fig. 1. All respondents' intention to travel concept map.

Fig. 1 shows the concept map for the first question, where each of the nine themes and their related concepts are displayed. Also shown are the relative positions of the four sub-groups (e.g., Australian cruisers Australian non-cruisers, UK cruisers, UK non-cruisers). The concept map highlights several important results. First, the proximity and association between the themes and concepts. Second, the proximity and association of the four sub-groups to the themes and concepts. As can be seen, the theme TRAVEL was at the epicentre of the text, with connections to RISKY flowing through the concept *health*. The themes AUSTRALIA and FEEL were linked to TRAVEL through the concepts *overseas* and *anywhere*, *feel*, and *health*. These associations show the influence COVID-19 has had on travel generally and the perceived risk and feelings of concern this provokes. The peripheral, and less important theme associations, other than that of INTERNATIONAL & INTERNATIONALLY, were more distant from TRAVEL, although COVID was directly connected to RISKY, as might be expected.

The relative proximity of the four sub-groups within the concept map is more interesting. The Australian cruisers (Aust cruisers) were distinctly different from their counterparts in the other three groups. As already noted, being dedicated travellers, while affected by the impact of the COVID-19 pandemic restricting international travel, they

focused on seeking alternatives within Australia where there were many good opportunities that were perceived as accessible and safe from the threat of the coronavirus. By contrast, UK cruisers and non-cruisers, while equally concerned about the threat of the virus, were waiting to travel locally and abroad due to the travel restrictions in the UK and overseas. The position of the Australian non-cruisers within the concept map suggests they were also concerned about traveling during the pandemic and were nervous as a result. However, like their counterparts in the Australian cruiser community, they were also able to consider local domestic travel.

4.2. Question 2 - intentions to cruise

The Leximancer analysis of question two identified 10 themes comprising 17 concepts. As listed in Table 3, the most important theme was 'CRUISE', which attracted 216 hits and included the concepts *cruise, ships, future, ship,* and *people*. This theme reflected respondents' perceptions about the idea of taking an ocean cruise in the future. As can be seen from the indicative text displayed in Table 3, there was a mixture of responses, mostly negative, about the risk ocean cruising posed during the COVID-19 pandemic and other concerns about the
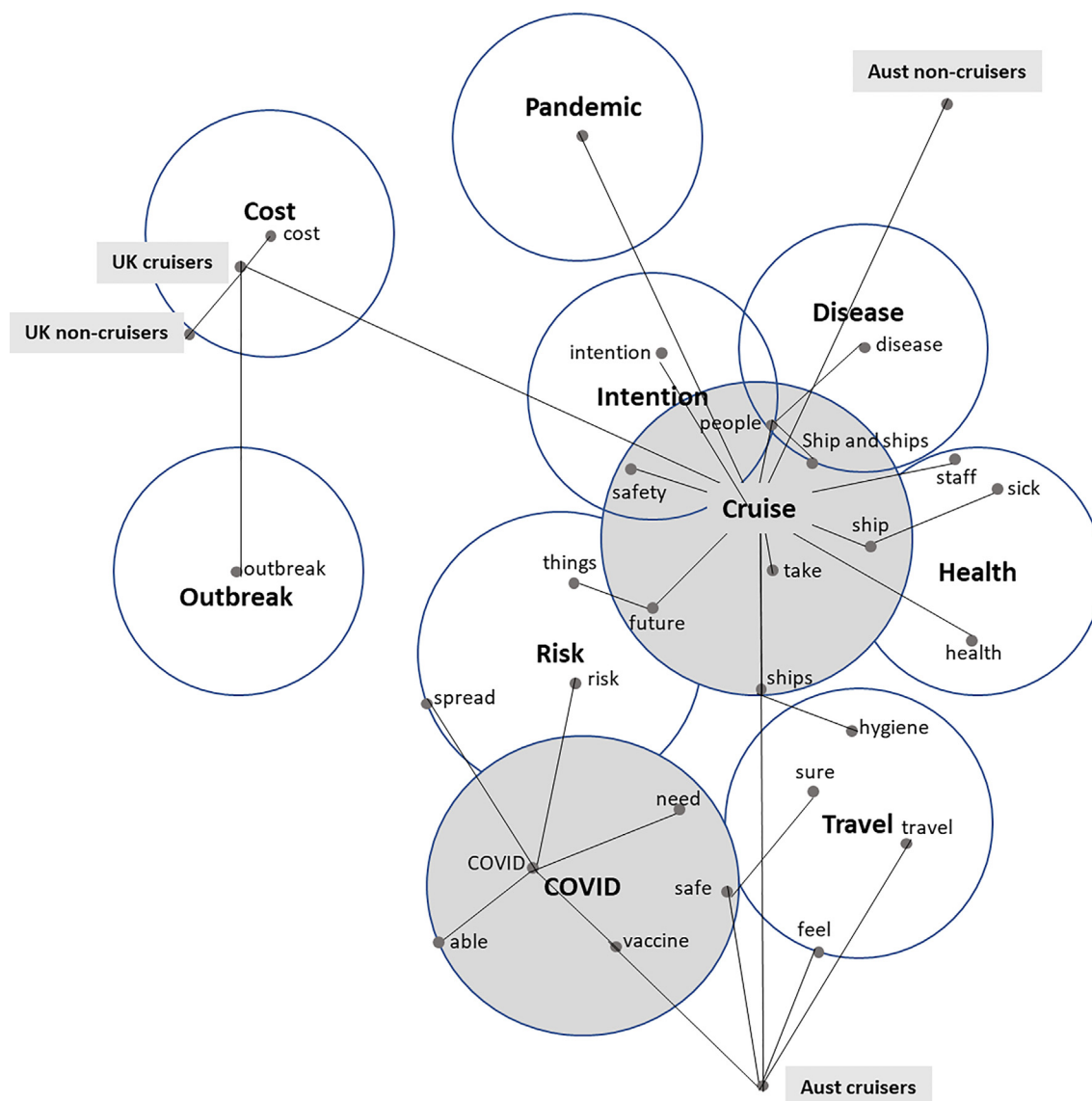
Fig. 2. All respondents' intention to cruise concept map.

potential for cruise ships to serve as a transfer point for illnesses. In some cases, there were also concerns about the way cruise ship companies treated their employees and the negative impact cruise ships can have on the environment (e.g., UK non-cruiser).

The second most important theme was 'COVID', which attracted 155 hits and included the concepts, *COVID, vaccine, safe* and *need*. This theme was related to respondents' desire to see a vaccine or other control brought over the coronavirus before they would feel safe travelling on cruise ships. Others expressed a desire to only travel to 'safe' places. For non-cruisers, the impact of the COVID-19 pandemic was viewed as simply reinforcing their existing negative views of ocean cruising (e.g., Australian non-cruisers).

The remaining eight themes all had significantly fewer hits and were single concept in nature. The theme 'TRAVEL' related to the impact of travel bans restricting cruising, which appeared to be of particular concern to Australian cruisers. The theme 'RISK' focused on the perceived risk respondents felt ocean cruising posed to themselves and their families. The theme 'HEALTH' was associated with general concerns about health that might impact their ability to cruise, with many referring to their age and/or pre-existing health conditions. The theme 'PANDEMIC' encompassed respondents' concerns over a second-wave

of the COVID-19 pandemic, as well as the need to wait until the pandemic was over before taking a cruise. Some were also worried about booking a cruise only to have the virus force the cancelation of the trip; creating problems in securing refunds (e.g., Australian non-cruisers). The theme 'INTENTION' reflected respondents' intentions to take a cruise in the future and, as shown, this was largely negative for many from all four groups.

The theme 'DISEASE' addressed concerns people held about getting ill onboard a cruise ship or having cruised and contracted a disease as a result (e.g., Australian cruisers). Overall, this theme reflected concern over the ability of cruise ships, which keep many people within a confined space for lengthy periods, to become transmission systems for disease. The theme 'COST' focused on the cost of travel aboard ocean cruise ships and the cost of travel insurance, which for people with pre-existing illnesses, or those of an advanced age, can be very expensive. As illustrated in the comments of one Australian cruiser, this cost included restrictions on their ability to bring and consume alcohol onboard that was not supplied by the vessel, and the high cost of onboard medical treatment. Finally, the theme 'OUTBREAK' reflected concerns about the risk of an outbreak of coronavirus or some other illness, including food poisoning from onboard catering (e.g., UK cruiser).

Table 2
Key themes and concepts – Travel intentions.

THEMES	HITS	CONCEPTS	INDICATIVE TEXT
TRAVEL	368	*Travel, moment, internationally, home, COVID, risk*	I feel fairly comfortable travelling locally now but wouldn't venture too far from home unless absolutely unavoidable. I respect the fact that if I travel, I risk infecting others by not knowing if I suffer from COVID-19, or not. (Aust Cruiser). I do not think it is right to risk travelling any distance at the moment - so I will drive a short distance to walk somewhere nicer than my local streets, but I will not travel to the coast or the city, for example. I have not travelled internationally for nine years, but I would certainly not consider it at the moment. I would not consider going on a cruise again. (UK cruiser). I would travel if I knew for certain of the level of risk of catching COVID-19 and able to take appropriate precautions to prevent it. (UK non-cruiser). I would feel really uncomfortable travelling right now both domestically and internationally because of the ongoing COVID-19 pandemic. Am afraid I or anyone of my close family members may get affected during the travel. (UK cruiser). My age group appears to be very susceptible to COVID-19 and because of this I will not be travelling internationally again until there is a proven vaccine available. (Aust Cruiser). I will not travel at the moment as the UK Government says it is not safe. (UK non-cruiser).
RISKY	134	*Risky, time, safe, cruise*	Would only even reconsider a cruise on small ships with exceptional service and hygiene. Travelling international passing through Asia or Middle East or US too risky travelling domestically to start with would be but car and then flights to safe destinations. **(Aust Cruiser).** Travelling internationally could be risky. A cruise that didn't go anywhere other than my country would be ok travelling within my country seem safe and I would be keen as I know it would also help the local businesses. **(Aust non-cruiser).** Solely because of age risk (I'm 78) I am for now avoiding any travel that involves being close to people other than in my own household. I'd like to go on a cruise one day, preferably a low-cost no-frills one with a low carbon footprint. **(UK non-cruiser).** I am concerned about the health risks of travelling at this time because of the coronavirus, but also it wouldn't be possible as so many borders are closed and there are restrictions in place. **(Aust non-cruiser).** Depends where you go in current environment of coronavirus. **(Aust non-cruiser).** I would never go on a cruise as I believe that they are an unhealthy situation at any time. **(Aust non-cruiser).** I would feel a little scared to travel in regard to Coronavirus. **(Aust non-cruiser).** It is too risky to travel now due to COVID-19. **(UK non-cruiser).** Definitely something I would not do at this time, very risky and dangerous to my health, would cause a lot of problems. **(Aust non-cruiser).** I don't think anyone should be travelling right now it's way too risky. **(Aust non-cruiser).** Air travel worries me, and I will avoid at the moment. Will not travel overseas (with exception of NZ and Pacific Islands). Will not cruise for some time I don't think. **(Aust cruiser).**
AUSTRALIA	100	*Australia, overseas, international*	To be honest I have no desire to travel international. Australia has so much to see. **(Aust cruiser).** Depends on where I was going. Travel within Australia ok but not overseas. **(Aust cruiser).** Still would not travel overseas & unsure about travel within Australia. **(Aust cruiser).** I am still okay to do some travelling within my own state and country of Australia. However, I would not want to be doing any international travel anytime soon. **(Aust cruiser).** Safe in Australia provided you social distance. It is too hard to social distance on planes and ships so international travel is risky. **(Aust cruiser).**
FEEL	87	*Feel, country*	I feel nervous about travelling internationally or around the country. Cruise is out of the question for at least 2 years. **(Aust cruiser).** I feel ok travelling in my country but would not go overseas at the moment. **(Aust cruiser).** I would be fine regarding travel in my own country right now, providing hygiene precautions are observed. I am on the fence regarding overseas trips, because I feel there could be another COVID outbreak, and from what I have seen in the last few months I would not like to be caught overseas in such a situation. **(Aust non-cruiser).** I wouldn't leave the country (just in case of emergency) but would feel ok traveling withing the country as soon as state borders are open. **(Aust non-cruiser).** I feel that travelling internationally involves too many risks and too many points of contact with other people who may or may not be carriers of the Coronavirus. I feel that travelling within my own country is a safer option as I can use my own transport (car) and stay in rather isolated accommodation if I so choose, and only visit rather isolated spots, in order to be careful. **(UK non-cruiser).**
COVID	27	*COVID*	Bit scared with COVID. **(UK cruiser).** COVID-19. **(UK non-cruiser).** Due to COVID the worry would cause me a lot of concern. **(Aust cruiser).** All this COVID-19 stuff is really turning me off travelling. **(Aust cruiser).** I would prefer to wait until COVID-19 has a vaccine. **(Aust cruiser).**
NERVOUS	14	*Nervous*	Nervous about travelling because of the virus. **(Aust cruiser).** Nervous but eagerly awaiting being able to travel somewhere soon. **(Aust cruiser).** Nervous, it is too soon. **(UK non-cruiser).** Nervous and unsafe because of virus. **(Aust cruiser).** Very nervous because of COVID-19. **(UK non-cruiser).** Nervous and uncertain as to quarantine rules. **(UK non-cruiser).** Domestic is OK, but nervous about internationally. **(Aust non-cruiser).** I would be very nervous about travelling right now as the virus is still out there and there is a potential risk of catching and spreading the virus to other people and places so it's just too risky. **(UK non-cruiser).** It is risky to travel anywhere right now. I would feel nervous about contracting COVID-19 if I travelled. I may travel in the future, but I will be cautious as to where and when. **(Aust non-cruiser).**
WAIT	14	*Wait*	I think certain parts of the world would be safer than others, but it is too soon, better to wait until the medical professionals give the go ahead. **(Aust cruiser).** I would be fine regarding travel in my own country right now, providing hygiene precautions are observed. I am on the fence regarding overseas trips, because I feel there could be another COVID outbreak, and from what I have seen in the last few months I would not like to be caught overseas in such a situation. I would rather wait until times are

Table 2 (*continued*)

THEMES	HITS	CONCEPTS	INDICATIVE TEXT
			more certain. **(Aust non-cruiser).**
			Fine in own country, will wait a while before traveling abroad. **UK non-cruiser).**
			I would rather wait out the troubles happening currently rather than risking unnecessarily, not just my own health, but those of others. I foresee my travelling prospects to happen next year. **(UK cruiser).**
			I would rather wait until either the coronavirus has been eradicated and / or a vaccine has been manufactured at scale and rolled out. **(UK non-cruiser).**
			I would prefer to wait until COVID-19 has a vaccine. **(Aust cruiser).**
ABROAD	13	*Abroad*	I'm not feeling comfortable about travelling abroad right now. **(UK cruiser).**
			I feel worried and feel like it is unnecessary to travel abroad. There is no real reason, we can all live in our homes if required. **(Aust non-cruiser).**
			Wouldn't even consider any form of travel abroad. Am prepared to go on short day trips in my home area to places I feel won't be crowded and will be properly managed e.g., National Trust. **(UK cruiser).**
			I'd be reluctant to travel abroad or on a plane at the moment. **(UK non-cruiser).**
INTERNATIONAL & INTERNATIONALLY	1	*International & Internationally*	I would be anxious about travelling internationally at the moment. So, I have cancelled all international plans and we are planning to take a break domestically in the **UK** in the next few months instead. **(UK cruiser).**

Fig. 2 shows the concept map for the second question relating to intentions to take an ocean cruise. As can be seen, the 10 themes are clustered around the two most important, CRUISE and COVID. It should be noted that CRUISE is linked to the sub-themes TRAVEL, INTENTION, HEALTH, DISEASE, PANDEMIC and COST, while the theme COVID is more associated with RISK and, through the concept *safe*, TRAVEL. The connection between COST and OUTBREAK suggests there was an association between the anticipated impact on costs of ocean cruising and insurance premiums in the event of fresh outbreaks, as well as worries that an outbreak on a cruise ship might result in the passenger being unable to recover their deposit if a cruise was cancelled.

As with question one (shown in Fig. 1), there was a clear separation between the Australian and UK respondents, with Australian cruisers distinctly different from their counterparts (e.g., UK cruisers), as well as Australian non-cruisers. Australian cruisers were directly associated with the themes COVID and TRAVEL, as well the concepts *COVID, vaccine, safe, feel,* and *travel.* This appears to reflect their focus on not being able to cruise due to the impact of the coronavirus and the restrictions this imposes and the risk to health. The location of the Australian non-cruisers indicates their less intimate knowledge of the ocean cruising experience and their focus on the effect of the coronavirus on cruise ships. For the UK cruisers and non-cruisers, their proximity within the map and adjacency to COST suggests they are less engaged with the broader range of issues associated with the impact the COVID-19 pandemic has had on ocean cruising. Australian respondents were generally more negative about ocean cruise travel, with cruisers less likely to want to cruise again and non-cruisers even more strongly opposed, with one respondent stating: "I have no intention to ever go on a cruise again." Many responses revealed anxiety, with most Australians stating they would avoid all travel and cruises during the pandemic. Phrases commonly shared across all groups included "risky", "scared", "anxious", and that any travel is "dangerous".

4.3. Differences between Australian cruisers and non-cruisers

The analysis revealed differences between cruiser and non-cruisers. The cruisers who had previous experience were generally willing to return to cruising once the COVID virus was defeated with a vaccine or had been brought under control in any destination countries.

"Until there is a vaccine available, I would not consider ever going on a cruise. I just wouldn't take the risk." **(AU cruiser)**

"I would need to feel 100% secure that Coronavirus has been eliminated or a vaccine has been found for it before I would go on another ocean cruise." **(AU cruiser)**

"I won't travel unless COVID 19 is gone or there is a vaccine" **(AU cruiser)**

This sentiment was repeated by others throughout the open-ended questions. Indeed, several comments indicate the significant influence of the pandemic on cruise intentions. This is reflected in comments such as:

"COVID has deeply impacted my intention to cruise." **(AU cruiser)**

"I didn't like cruises before, but now after all the issues with COVID-19, this way of travelling is totally out of my thoughts" **(AU cruiser)**

However, thematic analysis revealed some cruisers noted that, once the pandemic was under control, they would consider resuming cruising:

"I will cruise as soon as restrictions lift", "nothing would impact my intention to cruise", "I would love to go in the future when COVID-19 is completely lifted." **(AU cruisers)**

By contrast, non-cruisers were concerned over the risk of getting sick on the cruise ships which were described by many as a "petri dish" serving to help grow and spread disease. For example,

"many people died from COVID going on cruise ships. Seems like a petri dish
where the virus grows and grows on the ship." **(AU non-cruiser)**

The data suggested Australians were more likely to perceive cruise ships as unhealthy than were their counterparts in the UK:

"full of sickness and disease", "always illnesses on cruise ships even before Covid-19", "ships are a health hazard", with cruise ships called "cesspools of filth", "giant incubators" and "petri-dishes". (**AU non-cruiser**)

"I was very unhappy with how easy it was for people on the cruise ships to catch and transmit and disease including covid-19. I am afraid that if I were to go on a cruise, I would catch something awful from other passengers" **(AU non-cruiser)**

Thematic analysis also revealed a relationship between cleanliness and hygiene and future intentions to cruise. The map shows an emphasis where the themes RISK and COVID overlapped with the concepts 'feel' and 'safe'. This was also found in the thematic analysis and in comments, where several participants stated they expected and wanted more stringent health measures:

"The hygiene issues on cruises have now been highlighted for me. If one person gets sick, I would be worried about everyone getting sick. I would expect that cruise advertising would now include reassuring me of cleaning practices." **(AU non-cruiser)**

4.4. Differences between UK cruisers and non-cruisers

UK respondents were also concerned about the risk of contracting the COVID-19 virus during a cruise. The impact of the virus on their future cruising intentions was also raised along with the desire to

Table 3
Key themes and concepts – all respondents cruise intentions.

THEMES	HITS	CONCEPTS	INDICATIVE TEXT
CRUISE	216	*Cruise, ships, future, ship, people*	Definitely, because many people died from COVID going on cruise ships. Seems like a petri dish where the virus grows and grows on the ship. (Aust non-cruiser).
			Greater safety and control of the epidemic because a single patient is enough to make an outbreak of the virus on a cruise. (UK cruiser).
			The fact that all those people got locked down on a cruise ship is very frightening and I would hate to be on a cruise that does that. (Aust cruiser).
			Seeing people stuck on their cruises has really put me off and highlighted future problems. (UK cruiser).
			I would be more like to go on a cruise once the risk of the virus is lessened. I would also need to research cruises and their locations to find one that would suit me. (UK non-cruiser).
			I was very unhappy with how easy it was for people on the cruise ships to catch and transmit and disease including covid-19. I am afraid that if I ere to go on a cruise, I would catch something awful from other passengers. (Aust non-cruiser).
			I only ever seem to hear bad things about cruise liners, be it the impact they have on the environment (e.g. the dangerously rising sea levels around Venice; coral reef; pollutants they throw out which harms aquatic life and the ecosystem therein), the working conditions, the ability they have to spread illness in confined conditions, the dangers if they approach too close to a coastline (e.g. Costa Concordia), the way travellers may treat local environments when they make stop-off visits to quietly populated. (UK non-cruiser).
			Yes, I think if the cruise takes more precaution measures then I would be more likely to go on a cruise very soon. (UK cruiser).
			I don't like cruise ship travel for the reason if people get sick it travels throughout the ship just as what's happening now. (Aust non-cruiser).
COVID	155	*COVID, vaccine, safe, need*	No, I think after Covid-19 cruise ships are fully aware of everything they need to do to keep the passengers safe. **(Aust cruiser).**
			If COVID was cleared up and there was a safe, proven vaccine etc. **(Aust cruiser).**
			A cure for COVID-19. **(UK non-cruiser).**
			Complete eradication of COVID-19 and no new cases for months. **(UK cruiser).**
			I would need to feel 100% secure that Coronavirus has been eliminated or a vaccine has been found for it before I would go on another ocean cruise. **(Aust cruiser).**
			A vaccine or cure for COVID would make a difference. **(UK non-cruiser).**
			There are always illnesses on cruises even before COVID-19 and top of that staff are often exploited. **(Aust non-cruiser).**
			A COVID-19 vaccine would need to be available prior to taking another cruise. **(Aust cruiser).**
			I won't cruise until a vaccine is found for COVID. **(UK cruiser).**
			As I mentioned before I didn't like cruises before, but now after all the issues with COVID-19, this way of travelling is totally out of my thoughts. **(Aust non-cruiser).**
			Unless we get a vaccine for coronavirus, I'm not sure I will go on a cruise again. Nothing would stop me from going on a cruise, but I would probably cruise to safe places. **(Aust cruiser).**
TRAVEL	22	*Travel*	If it's OK to travel if travel ban is lifted. **(Aust cruiser).**
			Travel bans and COVID-19. **(Aust cruiser).**
			Other travel options, past experience. **(Aust cruiser).**
			I depends on how the virus is where I would travel. **(Aust cruiser).**
			Security of impact with others, although we do travel to enjoy people's company? **(UK cruiser).**
rISK	20	*Risk*	Even without COVID I would not want to be exposed to the risk of gastro etc. **(Aust cruiser).**
			My high-risk status. **(Aust cruiser).**
			Not really – I am too old to risk it and have cruised enough. **(Aust cruiser).**
			Yes, a husband who wouldn't consider cruising again. **(Aust cruiser).**
			COVID risk and new legislation to protect passengers. **(UK cruiser).**
			I will not be cruising if the virus is still around. **(Aust cruiser)**.
			No cruising. **(Aust cruiser).**
			If a vaccine for **COVID**-19 is not found and therefore community transmission remains in countries posing an ongoing risk to myself and my family. **(Aust cruiser).**
health	19	*Health*	Health concerns. **(Aust cruiser).**
			Old age and my health. **(Aust cruiser).**
			My health. **(Aust cruiser).**
			My health would cause me concern. **(Aust cruiser).**
			My failing health. **(Aust non-cruiser).**
pandemic	15	*Pandemic*	Whether this pandemic disappears or not and the risk of quarantine which was greatly publicised back in March. **(UK non-cruiser).**
			Coronavirus case numbers and maybe a guarantee of a refund if a booked cruise had to be cancelled due to a pandemic/ coronavirus. **(Aust non-cruiser).**
			A second wave of the pandemic would probably deter me from going on a cruise next year. **(UK cruiser).**
			The pandemic would have to ease right off. **(Aust non-cruiser).**
			Not really, once pandemic over it will be fine. **(UK cruiser).**
			The pandemic status. **(UK non-cruiser).**
intention	14	*Intention*	COVID-19 has deeply impacted my intention to cruise. **(Aust cruiser).**
			No. I have no intention of ever cruising, couldn't imaging much worse things to do! **(Aust non-cruiser).**
			I have no intention to ever go on a cruise again. **(Aust cruiser).**
			I have not future intention to cruise. **(UK cruiser).**
			I don't have any future intention to cruise. I don't like it. **(Aust cruiser).**
			No. I have no intention of going on a cruise. **(UK non-cruiser).**
disease	8	*Disease*	Most cruises have made me ill, and I have been hospitalized as soon as back in Australia. I have had Legionnaires disease and also Pseudomonas, both presumably caused from their air-conditioning systems. **(Aust cruiser).**
			I don't particularly like the idea of being trapped on a boat and I always thought they would be perfect disease hubs. I was right. Unless cruises became more entertaining or had more environmentally friendly activities then I would do it. **(Aust non-cruiser).**
			I was very unhappy with how easy it was for people on the cruise ships to catch and transmit and disease including COVID-19. I am afraid that if I were to go on a cruise, I would catch something awful from other passengers. **(Aust non-cruiser).**
			Yes, the threat of disease. **(Aust cruiser).**
			Sea sickness, full of sickness and disease. **(Aust non-cruiser).**
			Disease. Lots of people, unhygienic. **(Aust cruiser).**
			The risk of infectious disease. **(Aust cruiser).**

Table 3 (*continued*)

THEMES	HITS	CONCEPTS	INDICATIVE TEXT
cost	7	*Cost*	Yes, as a person who has 10 or so ocean cruises which I have enjoyed and seen parts of the world I never thought I'd see. Over these cruises, I feel that ocean cruises have become very authoritative, you could once bring alcohol on board, to have a drink in your own cabin, you cannot do this now, alcohol is expensive. In one of our 1st cruises one of our group became sick, flu symptoms, to visit the ship's doctor cost around $250 for a consultation. Whenever we have travelled on a cruise, we now take our own. **(Aust cruiser)**. Cost and insurance. **(UK cruiser)**. The cost. **(UK non-cruiser)**. Cost and insurance. **(Aust non-cruiser)**. Extra cost. **(UK cruiser)**. Yes, virus, impacts on climate and costs. **(Aust non-cruiser)**.
outbreak	7	*Outbreak*	Cruising has always seemed to carry a higher risk of illness - norovirus, food poisoning etc. I would like some proper reassurances from the industry re compensation, refunds etc in case of an illness outbreak. **(UK cruiser)**.Bigger outbreaks of COVID-19 on cruise ships however we would still love to cruise again and hope that things can be learnt from what has happened and different measures put into place. **(Aust cruiser)**. Another outbreak anywhere in the world would be disastrous. **(Aust non-cruiser)**. Length of time since corona outbreak. **(Aust cruiser)**. Further outbreak of COVID-19. **(UK cruiser)**. COVID outbreak. **(UK non-cruiser)**.

see a vaccine to protect against the virus, and the hope that the pandemic eases. However, there were calls to see cruise ship operators enhance the level of safety for passengers, and the cleanliness of the ships. There were comments highlighting the perception that it is easy to get sick onboard:

> "Cruising has always seemed to carry a higher risk of illness – or virus, food poisoning etc." **(UK cruiser)**

However, the data suggested UK cruisers were slightly more eager to resume travelling, with an underlying feeling that if everyone followed the rules, life could return to normal:

> "I would be more likely to go on a cruise once the risk of the virus is lessened. I would also need to research cruises and their locations to find one that would suit me." **(UK cruiser)**
>
> "The risk of disease…won't stop me, but I would be cautious about the size of the ship I choose to cruise on." **(UK cruiser)**

Yet more shared their feelings of desiring a return to cruising:

> "Once pandemic over it will be fine" **(UK cruiser)**
>
> "Not really - having been on cruises 45 years ago - I really want to do another." **(UK cruiser)**
>
> "Yes, I think if the cruise takes more precaution measures then I would be more likely to go on a cruise very soon" **(UK Cruiser)**

Analysis revealed several references to the increased likelihood that respondents might be encouraged to return to cruising if cost or price was attractive:

> "I would like to see more offers/promotions to entice me. I would like to see that cleaning practices are being regularly held." **(UK cruiser)**
>
> "Only the price [would affect my cruise intentions] – hopefully going down" **(UK cruiser)**

UK participants also wanted reassurance that ships were safe and clean and wanted to see evidence of improved hygiene and cleaning measures.

> "I would expect them to be more thorough with hygiene." **(UK cruiser)**

By contrast, thematic analysis revealed UK non-cruisers did not have as much opposition to cruising as AU non-cruisers. Many of the responses from the UK non-cruisers pointed to the little impact COVID has had on their intentions to cruise, as they had little desire to cruise before the pandemic. Thematic analysis also revealed that, for some of the non-cruisers, COVID-19 has had little impact on intention to cruise, as they rejected cruise holidays for other reasons. Participants stated they "would never cruise" and had "no interest" in cruising:

> "Not a cruise person", "don't like cruises", "Never ever wanted to cruise. Not my kind of holiday"
>
> "Never fancied anyway", "there is nothing that would convince me to go on a cruise". **(UK non-cruisers)**

For these people, the emergence of COVID-19 and risk perceptions that may have changed as result of the pandemic appear to have had little impact on intentions to cruise. However, other non-cruisers suggested once the pandemic was under control, they might try cruising:

> "It's something I would like to do when it is 100% safe to do so" **(UK non-cruiser)**

4.5. Assessment of all groups

Australian and UK non-cruisers appeared to associate ocean cruising with disease. However, as noted, the concept maps and thematic analysis revealed significant differences between the Australian and UK groups. Given that the groups were very similar in terms of socio-demographic factors (such as age, average household income and gender), this suggests country of residence had a significant influence on cruise intentions and willingness to cruise for this sample.

The Australian cruisers' comments point to a connection between the availability of a vaccine and their feelings of safety when cruising. Both Australian and UK cruiser groups showed a relationship between cruise ships and the spread of COVID-19, suggesting cruisers, with their direct experience, were more aware than non-cruisers of the ease of spreading infectious illnesses onboard. Thematic analysis also revealed COVID-19 had brought to the surface wider concerns about trust. Australian and UK respondents had little faith cruise operators would look after them if something went wrong. Australian respondents especially perceived that cruise operators would not look after them.

Nearly half of all respondents had less belief that cruise lines would be transparent and honest about any safety or health issues. Almost half of Australians, both cruisers and non-cruisers, believed cruise operators were less transparent and honest, compared to the UK cruisers, who did not have strong feelings about this. In other words, both Australian groups were much more likely to hold less trust in cruise operators, whereas this did not emerge as significant for the UK groups. An Australian respondent said they felt the cruise lines were "greedy trying to restart too soon", while another stated:

> "The cruise ship industry will need to be more accountable, have strict procedures especially in areas of health and potential diseases, food safety, safety & securities and transparent in all things in regard to this." **(Aust cruiser)**.

By comparison, a UK non-cruiser commented:

"I only ever seem to hear bad things about cruise liners, be it the impact they have on the environment (e.g., the dangerously rising sea levels around Venice; coral reef; pollutants they throw out which harms aquatic life and the ecosystem therein), the working conditions, the ability they have to spread illness in confined conditions, the dangers if they approach too close to a coastline" **(UK non-cruiser)**.

5. Discussion

As noted in the introduction, this study was undertaken to address specific research gaps to better understand the effects of COVID-19 on risk perceptions for Australian and UK cruise markets. Further, the study sought to determine the effect of the pandemic on how people think and feel about cruises, how risk may potentially influence decision-making for a cruise holiday and to explore how non-cruisers perceive risk in cruising. Findings suggested three main contributions to deepening understanding of Australian and UK participants' perceptions of risk in ocean cruising in relation to the COVID-19 pandemic.

First, significant differences were found between Australian and UK participants, suggesting that, for this sample, country of residence influenced risk perceptions. Australians were much less positive about a cruise holiday and appeared to be angrier and more anxious than the UK respondents. The heightened anxiety of Australian participants when compared to their UK counterparts may be explained by the social context/media portrayal of cruising and amplified risk perceptions about cruising. This study supports previous research that found media coverage can define and shape risk perceptions (Mazur, 1994). Drawing on the conceptual framework of the social amplification of risk (Kasperson et al., 1988), risk may be amplified through opinion leaders, cultural and social groups, government agencies, information offices (i.e., public relations offices of a cruise line) and the news media.

Here, risk perceptions were amplified through the widespread and greater volume of publicly conveyed information about COVID-19 on cruise ships. This was particularly evident in comments by Australian respondents, suggesting a relationship between the media's response and the amplification of the risk and fear of becoming infected with COVID-19, but also reminding the public of previous illnesses and outbreaks onboard cruise ships. SARF suggests that, when a risk is feared, rumours and the spreading of incorrect information influences public perceptions and attitudes. Indeed, even after the *Ruby Princess* commission report was released, which absolved the cruise line of misleading authorities or acting inappropriately, many people appeared resistant to this new, conflicting information.

Second, cruise experience did not appear to have a positive effect on cruise intentions in the same way previous studies have found. The findings highlighted anxieties about cruise holidays among cruisers and non-cruisers and both were negative towards taking a cruise in the future. Many said they would not travel until there was a vaccine. This is significantly different to previous studies, which found infectious illness outbreaks did not significantly influence cruisers' intentions (Baker and Stockton, 2013; Liu et al., 2016). Liu et al. (2016) found cruise passengers perceived self-efficacy moderated the relationship between the perceived risk of contracting norovirus and the perceived overall safety of cruising. In other words, more cruise experience led to passengers taking more steps to protect themselves, which increased confidence in not getting sick. Similarly, Holland (2020) found although non-cruisers overwhelmingly felt cruise ships were places of infection and that it was common to get sick, cruisers felt safe and trusted the health measures implemented to look after them. Liu-Lastres et al. (2019) also found effective and accurate infor-

mation helps passengers feel safer and more able to cope with potential outbreaks. These studies primarily were concerned with norovirus, which while distressing, is rarely, if ever fatal. This may account, at least in part, for some of the differences in study findings, given that COVID-19 has a much higher mortality rate, and accompanying dread factor. This study contributed to the literature by finding COVID-19 has had a negative impact on intentions to cruise for those who have previous cruise experience, which is fundamentally different to other studies.

Third, the impacts of a risk event may be seen in specific ways (Kasperson et al., 1988), which is indicative of what has occurred for COVID-19 and the cruise industry, as is outlined in Table 4. The impacts of COVID-19 on the cruise industry can be seen in the table and reflect what often happens after a risk event. The table serves as a starting point to move forward with identifiable recommendations

Table 4
Framing impacts of COVID-19 on cruise industry.

Loss of business	Drop in demand for future cruises / no one is booking
	Drop in consumer confidence for cruises and all forms of travel
	Reputational damage to Princess
	Reputation of industry damaged, cruising no longer considered 'safe'
Financial losses	Cruise lines - all revenue ceases
	Passengers demand refunds
	Contracts for both shoreside and crew staff are terminated with hundreds of thousands of cruise line employees out of work
	Tertiary businesses providing services such as hotels, airlines, ground transportation, shore excursions and port services suffer major losses
	Both Alaska and Australia encounter entire season closure resulting in unprecedented job losses and loss of revenue
	Installation of extra health measures onboard requires funding i.e., installation and adoption of modified HVAC systems
Regulatory constraints	Port entry dictated by national governments
	Many countries close borders and port of entry
	International travel restrictions jeopardising fly-cruise options as many countries closed to any tourist arrivals
	CDC no sail order for American ports
	Ban on cruise ship arrivals in the US, Canada, and Australia
Organizational changes	Consolidation and restructuring of brands
	Selling ships
	Restructuring financial terms and
	Re-organising itineraries
	New health measures developed to minimize risk in the future
	Inability to get crew and passengers home during crisis / rise in suicide rate will change mental health supports
Litigation	Many passengers are taking legal action for perceived negligence and exposure to COVID-19
	Legal action to get monies returned and compensation for holiday plans ruined
	Class action lawsuit from officers and crew for having been placed in harm and company failing to take appropriate prevention/action
Increase or decrease in physical risk	More effective and extensive health measures onboard resulting in safer onboard environments
	New HVAC systems will change air quality and decrease risk for all airborne infections
	Better filtration and monitoring of environment onboard decrease risks for Legionnaires' disease
Loss of confidence in institutions	Australians especially have lost trust in cruise lines and the wider industry as they perceive the cruise lines to be dishonest and untrustworthy
	Increased focus on flags of convenience business practices
	Consumer pressure to re-examine environmental and tax
	Brings attention to stateless multi-national companies

(Adapted from Kasperson et al., 1988)

for policy and practice. These specific areas can inform policy and provide avenues to foster a more positive image of the cruise industry and to assist in rebuilding the sector, post pandemic.

For much of the first half of 2020, the cruise industry was preoccupied with dealing with the immediate impacts of the crisis; responding to the initial outbreaks, repatriating passengers, and crew and, progressively, shutting down operations. Subsequently, the industry began addressing more of the identified impacts, developing more robust systems to prevent and manage infections onboard through technical aspects, such as the HVAC systems, and new approaches to managing the spread of community transmission. The industry has also collaborated to develop 74 recommendations to prevent and manage COVID-19 (Healthy Sail Panel, 2020), with specific guidelines for more testing, screening, reducing exposure, ventilation, sanitation, responses should there be an outbreak and reducing transmission during shore excursions and among crew. Several cruise lines have introduced extensive contact tracing onboard using wearable devices. New cancellation and refund schemes have been established to manage consumer anxiety about the possible loss of deposits and cruise fares. Initial test sailings in late 2020 saw the industry trialling some of these measures, including controlled shore excursions, reduced passenger numbers, increased testing pre- and during the cruise, onboard isolation once positives cases were registered onboard, and termination of the cruise (see Hunter and Oppmann, 2020).

6. Conclusions, implications, and recommendations

This study contributes to the current body of literature by exploring perceived risk in relation to the impact of the 2020 coronavirus pandemic on future travel intentions in general, and towards ocean cruising specifically. The media plays a role in attenuating and amplifying risk perceptions, as was seen in Australia with the *Ruby Princess*. The cruise industry must develop policies and strategies to overcome an enduring image of cruise holidays as dangerous. There now appears to be a stigmatisation of cruise holidays, where cruise ships are negatively perceived as risky, while cruise lines are dishonest, corrupt, untrustworthy, and valuing economic gain above human life.

The results have implications for policy and practice. Ultimately, it is critical that cruise lines and the industry disseminate information and educate consumers about risk mitigation. One prior example lies with the actions of the Centre for Disease Control and Prevention [CDC] in the USA. This organisation worked in tandem with the cruise industry to create and develop the Vessel Sanitation Program to educate the public about health measures in place to prevent and control the introduction, transmission and spread of gastro-intestinal disease (see CDC, 2019). While the CDC developed an excellent reporting and inspection system in that regard, COVID-19 has revealed its limitations, given the program only examined gastro-intestinal diseases and missed the opportunity to learn from other disease outbreaks such as SARS and MERS. Similarly, outbreaks of Legionnaires' disease have been minimised through policy changes and regulations, in addition to tighter measures and controls onboard all passenger ships (Garrison et al., 2016).

While extensive health procedures have been developed for the reporting and monitoring of illnesses, this information will need to be disseminated much more widely to improve consumer confidence. Most cruise ships have developed a brand-specific outbreak prevention plan based on CDC guidelines and industry best practice. It is also essential for transparent and clear messaging, as this will reduce risk perceptions and encourage consumer confidence. This also highlights the importance of tailoring messaging to different audiences and the significance of emotion in affecting how messages are interpreted (Liu-Lastres et al., 2019). Our study indicates that, for cruising to successfully resume, the industry will need to ensure that consumers feel safe physically (in terms of their health) and that their investment in

choosing a cruise holiday is also 'safe' (i.e., financially, in terms of time expended in the choice and commitment and that the cruise holiday is unlikely to be cancelled or changed). The cruise industry must acknowledge COVID-19 has significantly changed people's perceptions of the risks of cruising. By implementing the measures already mentioned, the cruise industry would be able to mitigate this risk perception. These findings support this, as respondents mentioned such measures would help them feel safe. Combined with the rollout of vaccines within the broader community, the industry is potentially well-placed to resume operations.

Future research should use the SARF model to determine the extent to which social amplification affects risk perceptions for cruising in relation to COVID-19. This study found significant differences between Australian and UK consumers and SARF may help explain why Australians were more negative towards cruise holidays, despite similar socio-demographic characteristics. The model could be applied in future research to examine relationships of interest. SARF could also help explain the roles affect and emotion have on risk perceptions. Future research should also compare how risk perceptions and the perceived threats of COVID-19 compare to other onboard health and safety risks, and how this may influence cruise decision-making.

Future studies should examine individual risk perceptions in relation to factors such as cruise history or preference for cruise length, including examining differences between first-time and repeat cruisers to see if there is any relationship between risk perceptions and intentions to cruise based on how many cruises a participant has gone on. Further, future research could explore the extent to which pre-existing health conditions and other vulnerabilities affect consumers' perceptions of risks in cruising. Finally, future research might consider market segmentation to determine how factors such as family status, age, education level or income affect risk perceptions, as this would help marketers better understand their potential customers.

To build a sustainable future for the sector, the industry must understand the extent to which COVID-19 has fundamentally changed cruising and the cruise industry, not just in terms of risk perceptions but also such aspects as the complete cruising experience and the balance between self-determination and institutional direction. Failure to recognise and understand the inherent changes to cruising wrought by the pandemic puts at risk the future viability of ocean cruising. This will be a significant area of future research for both industry and academia.

The cruise sector has been devastated by the pandemic and more research is needed to better understand the impact of COVID-19. It is imperative to understand how the pandemic is affecting people's willingness to cruise and attitudes towards cruising that will, in turn, affect future cruise and travel intentions. While the global tourism industry has been negatively affected by the pandemic, no other sector has been as widely impacted as the cruise sector, with a return to the robust growth enjoyed prior to COVID-19 not likely for many years, if ever.

CRediT authorship contribution statement

Jennifer Holland: Conceptualization, Formal analysis, Writing - original draft, Writing – review & editing. **Tim Mazzarol:** Conceptualization, Formal analysis, Funding acquisition, Methodology, Writing - original draft, Writing – review & editing. **Geoffrey N. Soutar:** Conceptualization, Formal analysis, Methodology, Writing – review & editing. **Suellen Tapsall:** Conceptualization, Methodology, Writing - original draft, Writing – review & editing. **Wendy A. Elliott:** Conceptualization, Methodology, Project administration, Writing - original draft, Writing – review & editing.

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